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PLANETARY PHENOMENA FOR JANUARY AND
FEBRUARY, 1913.

BY MALCOLM MCNEILL.

PHASES OF THE MOON, PACIFIC TIME.

New Moon	Jan. 7, 2 ^h 28 ^m A.M.	New Moon	Feb. 5, 9 ^h 22 ^m P.M.
First Quarter..	" 15, 8 2 A.M.	First Quarter...	" 14, 12 34 A.M.
Full Moon	" 22, 7 40 A.M.	Full Moon	" 20, 6 3 P.M.
Last Quarter...	" 28, 11 34 P.M.	Last Quarter...	" 27, 1 15 P.M.

There will be five eclipses during the year: March 21st-22d, a total eclipse of the Moon; April 6th, a partial eclipse of the Sun; August 31st, a partial eclipse of the Sun; September 14th-15th, a total eclipse of the Moon; September 29th, a partial eclipse of the Sun.

Mercury is in fair position for observation on early January mornings. It passed greatest west elongation in December, and on January 1st rises nearly an hour and three-quarters before sunrise. This interval is diminishing, but remains more than an hour until the middle of the month, and the planet can be seen without much difficulty in the early morning. After this the planet is too near the Sun for naked-eye view, reaching superior conjunction and becoming an evening star on February 12th. It then moves very rapidly away from the Sun, and is well out toward greatest east elongation by the end of the month, setting nearly an hour and three-quarters after sunset and being in fine position for evening observation. It is in conjunction with *Mars* on the afternoon of January 9th, passing $0^{\circ} 46'$ north; with *Jupiter* on the morning of January 11th, the nearest approach being only $0^{\circ} 13'$, less than half the apparent diameter of the Moon, and with *Uranus* on the morning of February 1st. At the last conjunction the planets are entirely too near the Sun for naked-eye view.

Venus is in fine position for evening observation, setting about three and one-half hours after sunset on January 1st, and nearly four hours after sunset at the end of February. Its apparent distance from the Sun increases slowly until it reaches greatest east elongation $46^{\circ} 43'$ on February 12th. It then begins to draw nearer the Sun on its way toward inferior

conjunction. During the two months it moves about 56° eastward and northward among the stars from the eastern part of *Capricorn* through *Aquarius* and *Pisces*, passing less than 1° north of the vernal equinox on February 2d. Its actual distance from the Earth diminishes very rapidly, more than forty per cent from January 1st to February 29th, and there will be a noticeable increase in the planet's brightness during the interval. The greatest brilliancy will come in March, but toward the end of February it will be possible to see it without a telescope in full sunlight under favorable weather conditions.

Mars is now an early morning object, slowly increasing its apparent distance from the Sun, rising a little more than an hour before sunrise on January 1st, and less than an hour and one half before on February 28th. It will therefore not be an easy object to make out without a telescope, but it can be seen in the morning twilight if the weather is favorable. Its distance from the Earth has diminished somewhat since its conjunction with the Sun in November and its brightness is a little greater, but not noticeably so. It will gradually draw nearer the Earth throughout the whole year, but will not reach opposition until January, 1914. On January 1st its brightness will be about eight per cent of its next opposition brightness, but only about four per cent of the brightness at the last opposition in November, 1911. The 1914 opposition will not be a favorable one. Its conjunction with *Mercury* on January 9th has already been mentioned. It will be in conjunction with *Jupiter* on January 13th, being then less than 1° south, and with *Uranus* on February 25th, but the latter is too faint for naked-eye view so near the Sun.

Jupiter is a morning object, rising less than an hour before sunrise on January 1st, and about three hours before on February 28th. It moves about 13° eastward in *Sagittarius*, and is a short distance north of the group known as the milk dipper. Its conjunctions with *Mercury* on January 11th and with *Mars* on January 13th have already been mentioned.

Saturn is in good position for evening observation, passing the meridian at about 9 p. m. on January 1st and shortly after 5 p. m. on February 28th. On January 1st it does not set until

4 A. M., and not until after midnight on February 28th. It is in *Taurus*, about 5° south of the *Pleiades* group, and moves about 1° westward in January. On January 29th it becomes stationary and then moves eastward, being at the end of February in about the same position among the stars as it occupied on January 1st. As seen in the telescope the rings show nearly their maximum breadth, although the actual maximum will not be reached during 1913.

Uranus is too near the Sun for naked-eye view. On January 1st it sets less than two hours after sunset and passes conjunction on January 23d. It then becomes a morning star and gradually separates from the Sun, but does not reach a sufficient distance for easy view until after the end of February.

Neptune comes to opposition with the Sun on January 15th, and is above the horizon nearly the entire night throughout the two months' period. It is in *Gemini* south of *Castor* and *Pollux*, the principal stars of the constellation.

(SEVENTY-FOURTH) AWARD OF THE DONOHOE
COMET-MEDAL.

The Comet-Medal of the Astronomical Society of the Pacific has been awarded to Mr. WALTER F. GALE, of Sydney, New South Wales, for the discovery of an unexpected comet on September 8, 1912. Committee on the Comet-Medal:

W. W. CAMPBELL,
SIDNEY D. TOWNLEY,
HEBER D. CURTIS.

(SEVENTY-FIFTH) AWARD OF THE DONOHOE
COMET-MEDAL.

The Comet-Medal of the Astronomical Society of the Pacific has been awarded to Monsieur A. BORRELLY, of Marseille, France, for the discovery of an unexpected comet on November 2, 1912. Committee on the Comet-Medal:

W. W. CAMPBELL,
SIDNEY D. TOWNLEY,
HEBER D. CURTIS.

(SEVENTY-SIXTH) AWARD OF THE DONOHOE
COMET-MEDAL.

The Comet-Medal of the Astronomical Society of the Pacific has been awarded to Monsieur A. SCHAUMASSE, of Nice, France, for the discovery, on October 18, 1912, of Tuttle's Comet at its present return.¹

Committee on the Comet-Medal:

W. W. CAMPBELL,
SIDNEY D. TOWNLEY,
HEBER D. CURTIS.

SAN FRANCISCO, November 30, 1912.

¹ The Statutes of the Astronomical Society of the Pacific provide that the Comet-Medal shall be bestowed "for the discovery of an unexpected comet." The object found by Monsieur SCHAUMASSE was 75° from the calculated place for Comet Tuttle, owing to the fact that perturbations had not yet been applied. To all intents and purposes, then, the discovery made by SCHAUMASSE was that of an unexpected object, and the Committee on the Comet-Medal have so ruled. The committee considers that each case of this sort must be decided strictly on its merits, and disclaims any intention of thereby establishing any precedent for future similar discoveries.